Severe bronchiolitis profiles and the risk of developing recurrent wheezing by age 3 years

Bronchiolitis is the most common acute lower respiratory tract infection in infancy. The majority of patients present with mild to moderate symptoms; however, the symptoms may be severe, requiring admission to hospital or an intensive care unit. Studies have shown that 30 - 40% of infants hospitalised for bronchiolitis will develop recurrent wheezing or asthma. The factors that predict which patients will go on to develop persistent wheezing or asthma remain obscure.

Viral pathogens such as the respiratory syncytial virus (RSV) and the rhinovirus are implicated in bronchiolitis, and studies have shown an association between them and the development of persistent wheezing or asthma in later childhood, especially with the rhinovirus.

There is increasing evidence for a complex interplay between viral pathogens, host immune response and respiratory microbiota in the pathogenesis and severity of acute respiratory infections, as well as their link with asthma-related outcomes. The current study aimed to investigate the association between bronchiolitis profiles designated designated allergy, inflammatory and immune response biomarkers (A), nasopharyngeal microbiota profiles (B), and the risk of developing recurent wheezing by age 3 years (C).[1]

Profile A infants (15%) were characterised by a higher proportion of history of breathing problems (44%) and history of eczema (23%), low RSV infection (5%) and high rhinovirus infection (54%).

Profile B infants (49%) had a low proportion with history of breathing problems (12%) or eczema (14%), and high RSV infection (99%).

Profile C infants (36%) were the most severely ill group, and 21% were hospitalised for 7 days or longer (v. 0 - 1% in other profiles); the majority in this group (83%) were infected with RSV.

The development of recurrent wheezing was 43% in profile A, 21% in profile B and 29% in profile C. Although this study illustrated the association between history of atopy, severity of bronchiolitis and likelihood of developing recurrent wheezing by 3 years old, further work still needs to be done to improve disease management and to shed more light on the relationship between infant bronchiolitis and recurrent wheezing or asthma.

M Ndlovu

Paediatric Pulmonology Fellow, University of KwaZulu-Natal and Inkosi Albert Luthuli Central Hospital, Durban, South Africa

Afr J Thoracic Crit Care Med 2018;24(4):148. DOI:10.7196/AJTC-CM.2018.v24i4.234

1. Dumas O, Hasegawa K, Mansbach JM, Sullivan AF, Piedra PA, Camargo Jr CA. Severe bronchiolitis profiles and risk of developing recurrent wheezing by age 3 years. J Allergy Clin Immunol 2018 (in press). https://doi.org/10.1016/j.jaci.2018.08.043

Sleep-disordered breathing and ventilatory support in children with Down syndrome

Down syndrome (DS) is the most common genetic cause of intellectual disability worldwide. Children with DS have a higher prevalence of sleep problems, such as difficulties in initiating and maintaining sleep, and daytime sleepiness, when compared with normal children.[1]

Obstructive sleep apnoea syndrome (OSAS) is the most common type of sleep-disordered breathing (SDB) in these children. Other forms of SDB included central SDB, nocturnal hypoventilation and low mean oxygen saturations. Although obesity is frequently associated with DS, it not directly related to severity of OSAS. The prevalence of pulmonary hypertension in DS is well recognised, and it may be worsened by OSAS. The European Respiratory Society recommends a stepwise approach to the management of OSAS; mild disease can be treated conservatively with intranasal steroids and leukotriene receptor antagonists, while moderate to severe disease warrants adenotonsillectomy. The use of positive airway pressure in the form of continuous positive airway pressure (CPAP) or bi-level noninvasive ventilation (NIV) can potentially maintain the patency of the upper airways in patients with residual symptoms post surgery. Literature about adherence and compliance with NIV in children, and in children with DS, is scanty, with previous studies focusing mainly on adults with DS.

Despite significant intellectual disability in children with DS, satisfactory adherence to non-invasive respiratory support can be achieved and maintained over time in these children. However, further research is required to better understand SDB, and improve management of this vulnerable population.

M Ndlovu

Paediatric Pulmonology Fellow, University of KwaZulu-Natal and Inkosi Albert Luthuli Central Hospital, Durban, South Africa

Afr J Thoracic Crit Care Med 2018;24(4):148. DOI:10.7196/AJTC-CM.2018.v24i4.235

1. Trucco F, Chatwin M, Semple T, Rosenthal M, Bush A, Tan HL. Sleep disordered breathing and ventilatory support in children with Down syndrome. Pediatr Pulmonol 2018;53(10):1414-1421. https://doi.org/10.1002/ppul.24122